



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2004/00028 (Forest Service)
2004/00029 (BLM)

March 25, 2004

Ken Denton
Team Leader
Port-Orford-cedar Interagency EIS Team
PO Box 2965
Portland, OR 97208

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation on Implementation of Standards and Guidelines for Port-Orford-cedar Management in Southwest Oregon

Dear Mr. Denton:

Enclosed is a biological opinion and conference opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7(a)(2) of the Endangered Species Act (ESA) on the effects of implementing the proposed standards and guidelines for the Port-Orford-cedar management in southwest Oregon by the U.S. Forest Service (FS) and the Bureau of Land Management (BLM). NOAA Fisheries concludes in this Opinion that the proposed action is not likely to jeopardize Southern Oregon/Northern California (SONC) coho salmon (*Oncorhynchus kisutch*), or destroy or adversely modify designated SONC critical habitat. The proposed action does not authorize completion of individual projects, so no incidental take exemption is granted with this opinion. Future projects that use these guidelines will need individual consultations to receive incidental take exemptions.

This Opinion also considers the effects to Oregon Coast (OC) coho salmon, a candidate species. You may ask NOAA Fisheries to confirm the conference opinion as a biological opinion issued through formal consultation if the OC coho salmon is listed or critical habitat is designated. The request must be in writing. If NOAA Fisheries reviews the proposed action and finds that the action as planned and the information used during the conference have not changed in a manner that may affect OC coho in a way not considered in this Opinion, NOAA Fisheries will confirm the conference opinion as the biological opinion for OC coho on this proposed action.

An essential fish habitat (EFH) consultation is also enclosed pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and its implementing regulations (50 CFR Part 600). As required by section 305(b)(4)(A) of the MSA, the enclosed consultation includes conservation recommendations that NOAA Fisheries believes will avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from the



proposed action. As further described in the enclosed consultation, section 305(b)(4)(B) of the MSA requires that a Federal action agency must provide a detailed response in writing within 30 days after receiving an EFH conservation recommendation.

If you have any questions regarding this consultation please contact Chuck Wheeler of my staff in the Southwest Oregon Habitat Branch of the Oregon State Habitat Office at 541.957.3379.

Sincerely,

Michael R. Crouse

D. Robert Lohn
Regional Administrator

cc: Scott Conroy, USFS
Sue Richardson, BLM
Tim Reuwsaast, BLM
Mark Buckbee, BLM
Craig Tuss, USFWS

Endangered Species Act - Section 7 Consultation Biological Opinion and Conference Opinion

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Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation

Implementation of Standards and Guidelines for Port-Orford-cedar Management,
Southwest Oregon

Agency: Forest Service
Bureau of Land Management

Consultation
Conducted By: National Marine Fisheries Service,
Northwest Region

Date Issued: March 25, 2004

Issued by: 

D. Robert Lohn
Regional Administrator

Refer to: 2004/00028 and 2004/00029

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1. INTRODUCTION

1.1 Background

On January 15, 2003, NOAA's National Marine Fisheries Service (NOAA Fisheries) received a biological assessment (BA) from the Port-Orford-cedar Interagency EIS team along with a letter requesting formal consultation on the effects of implementing the standards and guidelines for Port-Orford-cedar (POC) management. The request was made pursuant to section 7(a)(2) of the Endangered Species Act (ESA) and section 305(b)(2) of the Magnuson-Stevens Fishery Conservation Act (MSA). Besides describing the proposed action and its likely effects on aquatic resources, the Forest Service (FS) and the Bureau of Land Management (BLM) found that implementation of the action is likely to adversely affect Oregon Coast (OC) coho salmon, Southern Oregon/Northern California (SONC) coho salmon (*Oncorhynchus kisutch*) and SONC coho salmon critical habitat.

The natural range of POC is geographically limited to southwestern Oregon and Northwestern California, where it is an ecologically important tree species. Its unique ability to grow on ultramafic soils makes it the largest tree on many sites. It often grows within riparian zones and active stream channels where it is important for contributing shade and coarse wood to coho salmon habitat. POC is affected by an exotic root pathogen, *Phytophthora lateralis* (PL), which is nearly always fatal to infected trees. PL is dispersed, in part, by human transportation of spore-infested soil.

1.2 Consultation History

On December 9, 2003, the Rogue River Level I team, comprised of fish biologists from NOAA Fisheries and from administrative units within the SONC coho salmon and OC coho salmon ESUs, met and discussed a draft of the BA used in this evaluation. The Level I team discussed the effects of this project and provided recommendations for the final draft of the BA. The action agencies used the comments from the Level 1 team and finalized the BA on January 7, 2004. An additional meeting was conducted February 2, 2004, to clarify and provide missing information describing the full extent of the proposed action.

In the January 7, 2004, letter, the action agencies requested formal consultation for SONC coho salmon and OC coho salmon. On February 24, 2004, the Ninth Circuit Court of Appeals dismissed an appeal and dissolved their stay of a previous District Court ruling by Judge Michael Hogan. This ruling occurred on September 12, 2001, when U.S. District Court Judge Michael Hogan issued an order that set aside listing of OC coho salmon as threatened under the ESA, and remanded the issue to NOAA Fisheries for further consideration. In November of 2001, the ruling was appealed in the Ninth Circuit Court of Appeals. Pending the resolution of the appeals, the Ninth Circuit Court of Appeals stayed the District Court's ruling. Due to the February 24, 2004, dismissal, OC coho salmon are not afforded any protection under the ESA.

OC coho salmon are now a candidate species being reviewed for listing, therefore the action agencies requested a conference opinion on this species.¹

1.3 Proposed Action

The Environmental Impact Statement for the Management of Port-Orford cedar in Southwestern Oregon replaces the standards and guidelines for the resource management plans of the Medford, Roseburg, and Coos Bay Districts of the BLM and the land and resource management plan for the Rogue and Siskiyou National Forest. The proposed action would establish standards and guidelines, and a series of management practices that would be incorporated into projects that occur in an area containing POC. The proposed action does not authorize implementation of any individual projects, instead it replaces the standards and guidelines that pertain to management of POC. Individual consultation will occur on projects that follow these guidelines.

In general, these standards and guidelines place an emphasis on reducing the spread of PL and maintaining POC through various management practices applied at the project level following project-specific analysis. As a result, POC root disease control is considered, and control techniques are applied, at all levels of project planning and execution, including fire suppression.

The objectives of this alternative are to: (1) Maintain POC on sites where the risk for infection is low; (2) reduce the spread and severity of root disease in high risk areas to retain the ecological function of POC to the extent practicable; (3) reestablish POC in plant communities where it has been significantly reduced in numbers by root disease; and (4) reduce the likelihood of root disease becoming established in disease-free, 7th field subwatersheds. To meet the objectives, the strategy integrates prevention, restoration, detection, evaluation, suppression, and monitoring. The BLM and FS will continue to develop and evaluate techniques to protect POC and prevent disease intensity and spread within and around areas where PL infestations already occur.

Specific potential actions of this management strategy that relate to OC coho salmon, SONC coho salmon and SONC coho salmon critical habitat include: (1) Use of chlorinated bleach; (2) pumping water from streams; (3) eradication of POC; (4) sanitation of POC; and (5) culvert or bridge placement at low water crossings.

Use of Chlorinated Bleach

Water is used to suppress fires during firefighting and to wash equipment during firefighting and other ground-disturbing projects. To prevent or reduce spread of PL, chlorinated bleach (sodium hypochlorite) will be used to treat water (mixed with water at 1 part per 1000) for firefighting, and for washing vehicles, tools, and clothing. Washing of equipment and vehicles will occur during firefighting activities and any projects requiring heavy equipment use. All water will be

¹ Telephone conversation with Ken Denton, Bureau of Land Management (March 5, 2004) (requesting conferencing on OC coho salmon).

treated while it is in storage tanks before being discharged on the fire or used to wash equipment. Equipment will be washed before transferring from infested to uninfested areas. In uninfested watersheds or administrative units, heavy equipment, including road maintenance equipment that has left surfaced roads, will be washed on leaving infested project areas to minimize transport of infested soil to uninfested areas. Equipment includes maintenance and harvest equipment coming in contact with soils, and project truck and crew vehicles, leaving surfaced roads or traveling on other roads deemed at risk for spreading disease.

Pumping Water from Streams

Washing soil off vehicles and equipment will be used to control the spread of PL from infested areas. Pumping of stream water in coho streams or their tributaries will occur to wash equipment for all projects requiring heavy equipment use in POC areas. Pumping will include both infected and uninfected streams, with infected water being treated with chlorinated bleach as described above. Water pumping directly from streams involves the use of a pump with an intake that is screened with a mesh size sufficient to prevent entrainment of juvenile fish. Water draft sites can be at stream crossings, or at accessible flat riparian areas such as streamside recreation sites.

Pumping involves either direct pumping from a stream to a tanker truck or water tender, or the pumping and storage of water in a temporary tank or basin near the streambank. Temporary tanks and basins can require the need for a gas-powered pump, associated tools, and fuel to be near a stream. Streamside vegetation would be brushed to gain access to pump chances. Most of this work would include brushing previously cleared areas with few, if any, larger trees being removed. The riparian vegetation cleared would include willows, alders, and big leaf and vine maples. Clearing of any riparian vegetation may prevent establishment of a full complement of riparian cover within riparian zones for that immediate site.

All water pumping will adhere to the Terms and Conditions contained within the Revised Bureau of Land Management, Forest Service, and BIA/Coquille Indian Tribe Actions Affecting Southern Oregon/Northern California Coho Salmon, Oregon Coast Coho Salmon, and Oregon Coast Steelhead Opinion signed May 21, 2003. These terms and conditions include: (1) When pumping water from streams, ensure that at least one-half the original streamflow volume remains below the pump site; and (2) any water withdrawal must have a fish screen installed, operated and maintained in accordance to NOAA Fisheries' fish screen criteria.²

Eradication of POC

POC eradication may be tried as a management technique to prevent or reduce spread of the disease and reduce the need for other management practices in the long term. Eradication involves felling POC in areas where PL infestations are localized or infrequent in comparison to

² National Marine Fisheries Service, Juvenile Fish Screen Criteria (revised February 16, 1995) and *Addendum: Juvenile Fish Screen Criteria for Pump Intakes* (May 9, 1996)(guidelines and criteria for migrant fish passage facilities, and new pump intakes and existing inadequate pump intake screens) (<http://www.nwr.noaa.gov/1hydroweb/hydroweb/ferc.htm>).

the amount of POC in the vicinity of the infection. Only POC is felled, all other trees are reserved. The felled trees may or may not be left on site. Prescribed fire could be used either in the form of an underburn or pile and burn. Prescribed burns will be used to reduce fuel loadings and to kill POC trees too small to slash. Eradication may occur within riparian reserves along coho salmon-bearing streams or their tributaries.

Sanitation of POC

POC sanitation will be used to prevent or reduce spread of the disease and reduce the need for other management practices in the long term. Sanitation involves felling POC along a road, trail, recreation site, or other administrative site. Sanitation removal of POC near roads includes felling all POC trees 25 feet above the road and 25 to 50 feet below the road. Only POC is felled, all other trees are reserved. Similar treatments would be applied near trails, recreation sites, and other administrative sites. The felled trees may or may not be left on site. The resulting slash could be piled and burned. Sanitation may occur within riparian reserves along roads or trails that cross coho salmon-bearing streams or their tributaries.

Culvert or Bridge Placement at Low Water Crossings

PL-infested soil can be washed off tires at low water crossings. When this occurs, PL can spread, via the watercourse, to all areas downstream. Removal of low water crossings may occur at sites where the potential for the disease to spread through vehicle contact exists. Replacement of low water crossings with a culvert or bridge may occur at sites that are determined to be potential areas of disease-spread. Activities that can occur at low water crossing sites during culvert and bridge installations include bank and channel disturbance and modification, vegetation removal, temporary flow obstruction and routing, and introduction of sediment into channels from fill material placed around culverts or bridge structures.

All culvert and bridge placements will adhere to the Terms and Conditions contained within the Revised Bureau of Land Management, Forest Service, and BIA/Coquille Indian Tribe Actions Affecting Southern Oregon/Northern California Coho Salmon, Oregon Coast Coho Salmon, and Oregon Coast Steelhead Opinion signed May 21, 2003. These terms and conditions include: (1) Follow Oregon Department of Fish and Wildlife (ODFW) guidelines for timing of in-water work, where relevant, except where the potential for greater damage to fish, water quality and fish habitat exists; (2) provide for upstream passage of juvenile salmonids, the maximum average water velocity³ shall not exceed 1 foot per second; and (3) follow Northwest Forest Plan and ODFW guidelines for design and installation, and minimize sedimentation potential by implementing appropriate measures, as per Oregon Department of Environmental Quality (ODEQ) turbidity standards.

³ "Maximum average water velocity" means the average of water velocity within the barrel of the culvert calculated using the 10% annual exceedance of the daily average flow.

1.4 Description of the Action Area

The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area (project area) involved in the proposed action (50 CFR 402.02). The direct effects occur at or beyond the project site based on the potential for upstream or downstream effects (*e.g.*, displacement, injury to, or killing of coho salmon) in the action area. Indirect effects may occur at or beyond the project site when the proposed action leads to additional activities that contribute to aquatic habitat degradation. For this consultation, the action area encompasses all lands administered by the Rogue River-Siskiyou National Forest, and the Roseburg, Medford and Coos Bay Districts of the BLM containing POC, along with non-federal lands affected by the proposed action. Table 1 summarizes the fifth-field watersheds within the action area.

Table 1. Summary of the Fourth and Fifth-Field Watersheds within the action area.

Fourth-Field Watershed	Fifth-Field Watersheds
Applegate River	Lower Applegate River, Williams Creek
Illinois River	West Fork Illinois River, Sucker Creek, Indigo Creek, Deer Creek, Briggs Creek, Illinois River/Lawson Creek, Illinois River/Klondike Creek, Illinois River/Josephine Creek
Lower Rogue River	Jump Off Joe Creek, Rogue River/Stair Creek, Rogue River/Horseshoe bend, Rogue River/Ilahee Creek, Lower Rogue, Lobster Creek, Rogue River/Hellgate
Middle Rogue River	Rogue River/Grants Pass
Chetco River	Upper Chetco River, Lower Chetco River, North Fork Chetco River, Winchuck River, Hunter Creek, Pistol River
South Umpqua River	Lower South Umpqua River, Olalla Creek/Lookingglass, Upper Cow Creek, Middle Cow Creek, West Fork Cow Creek
Coos River	Lakeside Frontal, South Fork Coos River
Coquille River	Upper South Fork Coquille River, Lower South Fork Coquille River, East Fork Coquille River, Middle Fork Coquille River, Middle Main Coquille River, Lower Coquille River
Sixes River	Sixes River, Elk River, New River Frontal, Humbug-Nestika Frontal

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

This biological and conference opinion (Opinion) considers the potential effects of the proposed action on OC coho salmon, SONC coho salmon, and SONC coho salmon critical habitat which occur in the proposed action area. In Oregon coastal streams north of Cape Blanco, NOAA Fisheries listed OC coho salmon under the ESA as threatened on August 10, 1998 (63 FR 42587). Protective regulations for OC coho salmon were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). In Oregon coastal streams south of Cape Blanco, NOAA Fisheries listed SONC coho salmon as threatened under the ESA on May 6, 1997 (62 FR 24588), interim protective regulations were issued under section 4(d) of the ESA on July 18, 1997 (62 FR 38479), and critical habitat was designated on May 5, 1999 (64 FR 24049). Critical habitat includes all streams accessible to listed coho salmon between Cape Blanco, Oregon, and Punta Gorda, California. The designation includes all waterways, substrates, and adjacent riparian zones below longstanding, naturally-impassable barriers. The adjacent riparian zone is defined based on key riparian functions. These functions are shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter.

The objective of this Opinion is to determine whether the proposed action is likely to jeopardize the continued existence of OC coho salmon, SONC coho salmon or result in an adverse modification of SONC coho salmon critical habitat. This consultation is conducted pursuant to section 7(a)(2) of the ESA and its implementing regulations, 50 CFR 402. Because specific projects have not been identified, this Opinion will not provide incidental take exemptions. Future projects that incorporate these guidelines will need individual consultations to receive incidental take exemptions.

2.1.1 Biological Information

Although limited data are available to assess population numbers or trends, NOAA Fisheries believes that coho salmon stocks comprising the OC coho salmon and SONC coho salmon evolutionarily significant units (ESU) are depressed relative to past abundance. The OC coho salmon ESU is identified as all naturally-spawned populations of coho salmon in coastal streams south of the Columbia River and north of Cape Blanco (60 FR 38011, July 25, 1995). The SONC coho salmon ESU is identified as all naturally-spawned populations of coho salmon in coastal streams south of Cape Blanco and north of Punta Gorda (60 FR 38011, July 25, 1995). Biological information for OC coho salmon and SONC coho salmon can be found in species status assessments by NOAA Fisheries (Weitkamp *et al.* 1995) and by the Oregon Department of Fish and Wildlife (ODFW, Nickelson *et al.* 1992).

Abundance of wild coho salmon spawners in Oregon coastal streams declined from roughly 1965 to 1975, and has fluctuated at a low level since then (Nickelson *et al.* 1992). Spawning escapements may be less than 5% of that in the early 1900s. Contemporary production of coho salmon may be less than 10% of the historic production (Nickelson *et al.* 1992). Average

spawner abundance has been relatively constant since the late 1970s, but preharvest abundance has declined. Average recruits-per-spawner may also be declining.

The SONC coho salmon ESU, although not at immediate danger of extinction, may become endangered in the future if present trends continue (Weitkamp *et al.* 1995). Analysis of Rogue River data by the Biological Review Team (BRT 2003) found that trends in spawner abundance are positive, but that it relates to a reduction in harvest rather than improved freshwater conditions. The BRT also stated the low occupancy rates of historical coho salmon streams between 1986 and 2000 indicates continued low abundance in the California portion of this ESU (BRT 2003).

For the OC coho salmon ESU, preliminary findings of the BRT indicate recent increases in spawner escapement levels are likely due to good ocean productivity while freshwater productivity continues to decline. Continued degradation of freshwater habitat that results in decreased productivity may lead to localized extinction during the next low ocean productivity cycle (BRT 2003). NOAA Fisheries is reviewing the biological status of this species to determine if it warrants listing under the ESA.

2.1.2 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the definition of the biological requirements and current status of the listed species, and evaluation of the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize a listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to a listed salmonid's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize a listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action that avoid jeopardy, if any exists.

Furthermore, NOAA Fisheries evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify any listed species' designated critical habitat. NOAA Fisheries must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NOAA Fisheries identifies those effects of the action that impair the function of any essential element of critical habitat. NOAA Fisheries then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NOAA Fisheries concludes that the action will destroy or

adversely modify critical habitat, it must identify any reasonable and prudent alternatives available.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NOAA Fisheries' critical habitat analysis considers the extent to which the proposed action impairs the function of essential biological elements necessary for adult spawning, juvenile and adult migration, and juvenile rearing of SONC coho salmon.

2.1.3 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed coho salmon is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species, taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decisions to list the species for ESA protection and also considers new available data that is relevant to the determination.

The relevant biological requirements are those necessary for the species to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, spawning, and rearing.

2.1.4 Environmental Baseline

In step two of NOAA Fisheries' analysis, we evaluate the relevance of the environmental baseline in the action area. Regulations implementing section 7 of the ESA (50 CFR 402.02) define the environmental baseline as the past and present effects of all Federal, state, or private actions and other human activities in the action area. The environmental baseline also includes the anticipated effects of all proposed Federal projects in the action area that have undergone section 7 consultation, and the effects of state and private actions that are contemporaneous with the consultation in progress.

Land uses in the action area include rural, residential, agricultural, and forestry. Riparian areas and stream channels in the action area have been damaged by development activities related to these land uses, throughout the watershed (FEMAT 1993, Botkin *et al.* 1995, OCSRI 1997).

Habitat changes that have contributed to the decline of OC coho salmon and SONC coho salmon in the action area include: (1) Reduced biological, chemical, and physical connectivity between streams, riparian areas, floodplains, and uplands; (2) elevated fine sediment yields; (3) reduced instream large woody debris; (4) loss or degradation of riparian vegetation; (5) altered stream

channel morphology; (6) altered base and peak stream flows; and (7) fish passage impediments (OCSRI 1997).

The *Matrix of Pathways and Indicators* (MPI) and the *Checklist for Documenting Environmental Baseline and Effects of the Proposed Action(s) on Relevant Indicators* are used to characterize the environmental baseline in terms of current functional conditions of instream, riparian, and watershed elements that reflect local geologic and climatic conditions in the action area. The Level I team used the applicable Physiographic MPI (either the Klamath Mountains Province, Tyee Sandstone, or Western Cascades) and Checklist to characterize the environmental baseline for each of the 42 fifth-field watersheds.

The description of the environmental baseline for each fifth-field watershed is included in the biological assessment. However, due to the number of fifth-field watersheds, only summaries have been displayed in Tables 1 and 2. The environmental baseline descriptions of each fifth-field can be found in the BA and supplemental information packages.

Table 2. The number of Fifth-Field Watersheds within each category of Habitat Indicator Environmental Baseline Conditions within the range of SONC coho salmon.

Factors	Indicators	Properly Functioning	At Risk	Not Properly Functioning
Water Quality	Temperature	2	6	19
	Chemical Concentrations/ Nutrients	15	12	0
Access	Physical Barriers	14	7	6
Habitat Elements	Substrate/Sediment	6	15	6
	Large Woody Debris	7	11	9
	Pool Character and Quality	8	10	9
	Off-Channel Habitat/Refugia	5	13	9
Channel Condition and Dynamics	Width/Depth Ratio	6	16	5
	Streambank Condition	6	16	5
	Floodplain Connectivity	8	13	6
Flow/Hydrology	Changes in Peak/Base Flows	6	11	10
Watershed Conditions	Road Density and Location	3	10	14
	Disturbance History	3	11	13
	Riparian Reserves	5	12	10
	Landslide Rates	5	12	10

Table 3. The number of Fifth-Field Watersheds within each category of Habitat Indicator Environmental Baseline Conditions within the range of OC coho salmon. Some watersheds are within the Klamath Province, others are within the Tyee Sandstone Province.

Factors	Indicators	Properly Functioning	At Risk	Not Properly Functioning
Water Quality	Temperature	0	1	14
	Turbidity*	0	0	10
	Chemical Concentrations/ Nutrients	2	12	1
Access	Physical Barriers	0	4	11
Habitat Elements	Substrate/Sediment	0	9	6
	Large Woody Debris	0	0	15
	Pool Area %*	0	8	2
	Pool Quality	0	9	6
	Off-Channel Habitat/Refugia	0	6	9
Channel Condition and Dynamics	Width/Depth Ratio	1	3	11
	Streambank Condition	2	5	8
	Floodplain Connectivity	2	7	6
Flow/Hydrology	Changes in Peak/Base Flows**	0	3	2
Watershed Conditions	Road Density and Location	0	1	14
	Disturbance History	0	5	10
	Riparian Reserves	0	3	12
	Landslide Rates	0	1	14

*Fifth-Field Watersheds within the Klamath Province are not rated for turbidity or pool area %

**Fifth-Field Watersheds within the Tyee Sandstone Province are not rated for changes in peak and base flows

As noted above, the action area includes all areas directly or indirectly affected by the proposed action. The action area for this Opinion can be defined as all 42 watersheds in which the proposed actions would occur. OC coho salmon and SONC coho salmon use the action areas as habitat for rearing, feeding, spawning, incubation habitat, and migration. The environmental baseline of the action areas is dominated by conditions rated as functioning at risk or not properly functioning. These conditions are likely, in part, the result of past land management activities.

Based on the best available information regarding the current status of OC coho salmon and SONC coho salmon range-wide, the population status, trends, genetics, and the poor environmental baseline conditions within the action area, NOAA Fisheries concludes that the biological requirements of OC coho salmon and SONC coho salmon are not currently being met in the action area. Degraded habitat, resulting from agricultural practices, forestry practices, road building, municipal activities, and residential construction, indicate many aquatic habitat indicators are not properly functioning. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of OC coho salmon and SONC coho salmon.

2.1.5 Analysis of Effects

The effects analysis presented in this section is based on information in the BA and supplementary material. NOAA Fisheries expects the following actions of the proposed project to cause adverse effects to OC coho salmon and SONC coho salmon: (1) Use of chlorinated bleach; (2) pumping water from streams; (3) sanitation and eradication of POC; and (4) placing culverts and bridges over low water crossings.

Use of Chlorinated Bleach

The 30-minute LC50 of sodium hypochlorite (concentration at which half of the fish die in 30 minutes) for coho salmon is between 540 and 1,700 parts per billion.⁴ The concentration of sodium hypochlorite in treated water will be 60 parts per million, or between 35 and 111 times the LC50. Discharged into coho salmon-bearing streams, this concentration will kill coho salmon even after dilution by streamwater. Furthermore, if chlorinated water is discharged upstream from coho salmon-bearing water, it could result in a fish kill. Sodium hypochlorite is an unstable compound and rapidly degrades into non-toxic compounds when released into the environment. The half life of sodium hypochlorite when added to river water is on the order of minutes to hours.⁵ It is assumed that a spill would have to occur within a couple hundred yards of coho salmon to result in a fish kill. This is due to the rapid oxidation and degradation of the compound.

According to U.S. Department of Agriculture (USDA) and U.S. Department of the Interior (USDI) (2004), during suppression of the Biscuit Fire in 2002, in southwest Oregon, 26,700 gallons of chlorinated bleach were used. Three fish-killing spills of chlorinated water were observed. Two spills occurred during or directly after filling at a pump chance. The third was a result of the truck breaking down and releasing 3,500 gallons of treated water directly into a stream. This spill was on Hunter Creek, which is not coho salmon-bearing, but it did affect resident cutthroat trout. If a spill were to occur in coho salmon-bearing water, the effects to coho

⁴ Letter from Victoria Jones, Clorox Company, to the US Environmental Protection Agency (December 4, 1997)(RE: Toxic Release Inventory, Federal Register Notice 59FR1787)

⁵ Letter from Victoria Jones, Clorox Company, to the US Environmental Protection Agency (December 4, 1997)(RE: Toxic Release Inventory, Federal Register Notice 59FR1787)

salmon are expected to be similar as these documented effects to cutthroat trout. A review of the site by an ODFW biologist found 34 dead resident cutthroat trout within 80 yards of the discharge point.⁶ Live fish were observed 180 yards downstream of the discharge point. At the time of the spill, Hunter Creek was four feet wide and flowing approximately one cfs.⁷ The potential of a fish-killing spill occurring has been reduced with the proposed action because it requires adding chlorinated bleach to water only after tanks have been filled and moved away from the stream.

Two other pathways exist for delivery of chlorinated water to streams: (1) Helicopter drops and (2) wash station runoff. During fire suppression, chlorinated water is dropped from helicopters. Helicopter buckets typically carry between 700 and 1000 gallons of water. A project design feature of the proposed action directs helicopter operators not to drop water over stream channels, but with smoke and fire in the air, operators may not notice some streams. First- and second-order tributaries high in the drainage will be the most likely to go unnoticed and be harmed by a helicopter drop. Depending on their proximity to larger streams, this may or may not result in killing coho salmon. A drop that occurs more than a few hundred yards from coho salmon-bearing water will likely not result in a fish kill. Larger streams, which are more likely to contain coho salmon, are more likely to be identified by helicopter operators. While this pathway exists, a fish kill due to a helicopter drop of chlorinated water has never been documented. The potential for this to occur is assumed to be minimal and the effects to be localized as in the case of the Hunter Creek truck spill.

Wash station runoff that reaches streams may also result in a fish kill. Effects from this will be similar to those that occurred in the Hunter Creek spill. Project design features of the proposed action are intended to avoid wash station runoff reaching streams. They include choosing a location that is level and flat with no potential of runoff reaching streams. The potential for wash water to reach streams is small when the project design features and the time needed for overland flow to reach a streamcourse are taken into consideration.

Pumping Water From Streams

Water draft sites can be at stream crossings, or at accessible flat riparian areas. Expected adverse impacts to coho salmon, include: (1) Disturbance of coho individuals during pumping and use of a site; (2) temporary flow reduction; (3) loss of vegetation; and (4) streambank soil disturbance and compaction. Adverse effects due to pump chance use are expected to be minimal and localized. All pumps will be screened following NOAA Fisheries guidelines which minimize the possibility of fish impingement. It is unlikely that any new pump chance will be developed. Established pump chances are generally on larger streams and low in the watershed where

⁶ Letter from Todd Confer, Oregon Department of Fish and Wildlife, to Bill Blackwell, Rogue and Siskiyou National Forest (August 28, 2002)(RE: Clorox spill at Hunter Creek).

⁷ Telephone conversation with Bruce Floyd, US Forest Service (February 23, 2004)(discussing the size of Hunter Creek at the spill site).

streamflow is adequate to sustain pumping without a drop in water level. A project design feature will be implemented to leave at least half of the streamflow in the stream.

Eradication of POC

In the last seven years, only one eradication project (25 acres) has been completed. The EIS (USDA and USDI 2004) expects a 50% increase in spending on eradication treatments. This corresponds to average annual treatment of approximately 13 acres. If eradication treatments prove to be effective, their use may be increased. For the purpose of this Opinion, it is assumed that eradication will occur at an average rate of less than 50 acres per year, and no more than 100 acres will occur in any one year. These treatments are expected to be spread throughout the administration units and the 42 fifth-field watersheds.

Eradication will occur on small patches, usually less than 25 acres.⁸ Removal of POC may cause localized adverse effects through loss of vegetation and root strength along streambanks, loss of sources of large woody debris, and loss of shade canopy. Loss of large woody debris and root strength is not expected to adversely effect coho salmon outside of the vicinity of each tree that is removed. Loss of root strength will likely only persist for a year, at which time other vegetation will have grown to stabilize the soil.

Loss of shade canopy from eradication may result in increased solar radiation reaching streams in the vicinity of the removed trees. In areas where POC is not dominant in the stand, measurable stream temperature increases are not expected. In areas where POC is the dominant tree species, measurable increases in stream temperatures are expected. Temperature increases are expected to be no greater than those from a previous POC riparian treatment on Silver Creek. In the Silver Creek Project, 25 acres of POC and red alder were killed along a half mile stretch of the creek. The pre-treatment canopy coverage of at least 70% was reduced to less than 40%. Thermographs placed above and below the treatment area post-treatment showed that the stream, as it traveled through the treatment area, increased 1.7° F more than it did pre-treatment.⁹ The actual effects from the proposed project are expected to be no greater than those from the Silver Creek project because the Silver Creek project killed other trees besides POC to meet other project objectives. The size patch harvested was also equivalent to the maximum size expected for this project. As water flows downstream, a measurable increase in temperatures is expected to remain until the affected stream flows into a larger stream or body of water. Some streams may have colder springs or tributaries to reduce the elevated temperatures. This increase in temperature is expected to last a few years until brush or other trees grow and fill in the canopy thereby reducing the amount of solar radiation that reaches the stream. A maximum treatment of 100 acres per year is expected to limit the magnitude of this action. The probability that all of these acres would occur within one drainage and all within a riparian zone, is considered low.

⁸ Conversation with Frank Betlejewski, US Forest Service (February 11, 2004)(describing previous POC eradication projects).

⁹ Conversation with Frank Betlejewski, US Forest Service (February 26, 2004)(describing effects to stream temperature in the Silver Creek Project).

Prescribed burning could occur in riparian reserves and will increase the potential of sediment reaching streams. Broadcast burns have the potential of burning on the streambank. Any overland flow thereafter could deliver sediment directly to streams. Project design features include burning in the spring and fall, when moisture levels are high, burns are cool, and a mosaic pattern can be achieved. Burning vegetation to the stream is not a desired goal, but may occur on as much as 40% of the streambank within units.¹⁰ The magnitude of this potential sediment increase is considered to be limited to several factors: (1) Not all of the treated acres will occur in riparian areas; (2) these acres will occur in small patches; (3) treatment areas are not expected to be concentrated annually in any one watershed; and (4) due to the low fire intensity, regrowth of vegetation will occur rapidly to reduce the duration of exposed soil. Hand piling and burning are not expected to increase sediment delivery since no pile will be placed within 50 feet of streams.

Sanitation of POC

A recent survey of BLM and FS administrative units found that an average of 20 miles of road was being sanitized per year. The EIS (USDA and USDI 2004) estimates that acceptance of the proposed action will result in a 20% decrease in the average annual treatments. So, approximately 16 miles of road will be sanitized per year under the proposed action. These treatments are expected to be spread throughout the administration units and the 42 fifth-field watersheds.

Removal of POC may cause localized adverse effects through loss of shade canopy, loss of sources of large woody debris, and loss of root strength along streambanks. Loss of large woody debris and root strength is not expected to adversely affect coho salmon outside of the vicinity of each tree that is removed. Loss of shade canopy from POC sanitation may result in increased solar radiation reaching streams in the vicinity of the removed trees. Sanitation that occurs where roads cross streams are not expected to result in increased temperatures because of the small spatial scale of effects. Roads that are parallel to a stream but on the north side, will not increase solar radiation. Increased solar radiation and stream temperatures are expected to occur where the treated road is not on the north side of the stream and the road is within 100 feet of the stream. The increase in stream temperatures due to sanitation parallel to a stream is expected to be similar to, but less than, those that occurred in the Silver Creek eradication project. This is because there are few roads in the action area that are parallel to, and within 100 feet of, a stream for a half mile (which was the treatment distance along Silver Creek). The probability that temperatures would increase from this activity is lower than that of the eradication activity. Also, hand piling and burning are not expected to increase sediment delivery since no pile will be placed within 50 feet of streams.

¹⁰ Telephone conversation with Jon Raybourn, Bureau of Land Management (February 12, 2004)(discussing prescribed fire treatments near streams).

Culvert or Bridge Placement at Low Water Crossings

The number and location of low water crossings that would be candidates for replacement are relatively few and isolated. Adverse effects can occur during culvert and bridge installations, and can be produced from construction activities including bank and channel disturbance and/or modification, vegetation removal, temporary flow obstruction and routing, and introduction of sediment into channels when fill material is placed around culverts or bridge structures.

However, the proposed project design features are expected to limit sediment sources and design failures. Stream sedimentation can also occur for several years after the project is completed until the stream channel adjusts to its original form and vegetation has been established. The adverse effects of canopy reduction, sedimentation, and channel modification from this action is expected to be short-term and isolated at the site level and a few hundred feet downstream. Project design features are sufficient to negate any adverse effects to fish passage.

2.1.6 Critical Habitat

SONC coho salmon critical habitat was designated May 5, 1999 (64 FR 24049). SONC coho salmon critical habitat encompasses accessible reaches of all rivers (including estuarine areas and tributaries) between the Mattole River in California, and the Elk River in Oregon, including all waterways and substrate below longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for at least several hundred years). The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, input of large woody debris or organic matter, and others. Effects to critical habitat from the proposed action are included in the description of effects expressed above.

The critical habitat designation focused on essential habitat features which included spawning sites, food resources, water quality, water quantity, and riparian vegetation. The proposed actions have the potential to affect these essential features. Over the short term, temporary disturbances to the aquatic and riparian habitat may occur from the proposed activities. Over the long term, the proposed actions are expected to maintain existing environmental baseline conditions as discussed in section 2.1.5. Consequently, NOAA Fisheries does not expect that the net effect of these actions will diminish the long-term value of habitat for survival of SONC coho salmon. This analysis also considers the actions' effect on habitat occupied by OC coho salmon. In the event critical habitat is designated for this species, this analysis could be the basis for an assessment when consultation is reinitiated.

2.1.7 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as “those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation.” Other activities within the watershed have the potential to impact fish and habitat within the action area.

NOAA Fisheries is not aware of any specific future non-federal activities within the action area that would cause greater effects to listed species than presently occurs. The action area includes significant tracts of private lands. Land use on these non-federal lands include rural development, agricultural, and commercial forestry. Chemical fertilizers or pesticides are used on many of these lands, but no specific information is available regarding their use. NOAA Fisheries does not consider the rules governing timber harvests, agricultural practices, and rural development on non-federal lands within Oregon to be sufficiently protective of watershed, riparian, and stream habitat functions to support the survival and recovery of listed species. Therefore, these habitat functions likely are at risk due to future activities on non-federal forest lands within the basins.

Between 1990 and 2000, the human population in the four counties (Coos, Curry, Douglas, and Josephine) increased by 9.1%.¹¹ Thus, NOAA Fisheries assumes that future private and state actions will continue within the action area, increasing as population density rises. As the human population continues to grow, demand for actions similar to the subject project likely will continue to increase as well. Each subsequent action may have only a small incremental effect, but taken together they may have a significant effect that would further degrade the watershed's environmental baseline and undermine the improvements in habitat conditions necessary for listed species to survive and recover.

2.1.8 Conclusion

The fourth step in NOAA Fisheries' jeopardy analysis is to decide whether the proposed action, considering the above factors, is likely to appreciably reduce the likelihood of the species' survival and recovery in the wild. After reviewing the current status of OC coho salmon and SONC coho salmon, the environmental baseline for the action area, the effects of the proposed action and its cumulative effects, NOAA Fisheries has determined that implementation of the standards and guidelines for POC management, as proposed, are not likely to jeopardize the continued existence of OC coho salmon and SONC coho salmon or cause adverse modification or destruction of designated SONC coho salmon critical habitat. These conclusions were based on the following considerations: (1) Project design features for the use of chlorinated bleach are designed to keep chlorine out of streams; (2) when pumping water from streams, less than half of the streamflow will be taken and hose intakes will be screened; (3) it is unlikely that new pump chances will be needed; (4) effects from sanitation and eradication of POC, will be minor, local, and short-term; and (5) culvert and bridge placements will, as much as practicable, allow for stream channel processes, like large woody debris and sediment transport. Therefore, the action is not likely to jeopardize the continued existence of these species, and is not likely to destroy or adversely modify designated critical habitat for SONC coho salmon.

¹¹ U.S. Census Bureau, State and County Quickfacts: Douglas County, Oregon. Available online at <http://quickfacts.census.gov/qfd/states/41000.html>

2.1.9 Conservation Recommendation

Section 7(a)(1) of the ESA requires Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of threatened and endangered species. Conservation recommendations are discretionary measures suggested to avoid or minimize adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitats, or to develop additional information. NOAA Fisheries believes the following recommendations are consistent with these obligations, and therefore should be carried out by the FS and BLM.

1. The FS and BLM should monitor the implementation of future site level projects and their authorized incidental take statements to determine if modifications to these standards and guidelines are warranted for the protection and conservation of listed species.
2. Additional riparian reserve project design criteria should be considered and reviewed for the site level project planning phase. The objectives of these design criteria would include avoiding and minimizing increases in water temperature due to reduced shade and sediment erosion due to loss of ground cover within riparian reserves.
3. The FS and BLM should monitor the number of acres of POC eradication projects implemented each year to determine if the assumptions in the EIS and this Opinion have been exceeded. Furthermore, report the amounts annually to NOAA Fisheries by January 31 of the following year. The report should include a description the acreage occurring within one site potential tree height of a stream.
4. The FS and BLM should monitor the number of miles of POC sanitation projects implemented each year to determine if the assumptions in the EIS and this Opinion have been exceeded. Furthermore, report the amounts annually to NOAA Fisheries by January 31 of the following year. The report should include a description the miles of road side treated within one site potential tree height of a stream.

For NOAA Fisheries to be kept informed of actions that avoid or minimize adverse effects, or those that benefit listed salmon and steelhead or their habitats, we request notification of the achievement of any conservation recommendations when the COE submits its annual report describing achievements of the fish monitoring program during the previous year.

2.1.10 Reinitiation of Consultation

As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently

modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action.

2.2 Incidental Take Statement

The ESA at section 9 [16 USC 1538] prohibits take of endangered species. The prohibition of take is extended to threatened anadromous salmonids by section 4(d) rule [50 CFR 223.203]. Take is defined by the statute as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” [16 USC 1532(19)] Harm is defined by regulation as “an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavior patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering.” [50 CFR 222.102] Harass is defined as “an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering.” [50 CFR 17.3] Incidental take is defined as “takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant.” [50 CFR 402.02] The ESA at section 7(o)(2) removes the prohibition from any incidental taking that is in compliance with the terms and conditions specified in a section 7(b)(4) incidental take statement [16 USC 1536].

2.2.1 Amount or Extent of Take

The proposed action does not authorize individual projects or have the information necessary to determine the amount and extent of incidental take for individual projects. In cases like this, NOAA Fisheries uses a tiered programmatic consultation. The tiered approach requires additional subsequent project-level consultations before an incidental take statement can be applied. Because no incidental take can be anticipated at the program level, an individual consultation is necessary for each individual project of the program that may effect SONC coho salmon or SONC coho salmon critical habitat. The requirement to avoid or minimize incidental take resulting from the program actions is satisfied by deferring the final analysis of project effects and identification of appropriate take minimization measures until individual projects are developed.

3. MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

3.1 Background

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of essential fish habitat (EFH) descriptions in Federal fishery management plans.

In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat, “waters” include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate. “Substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities. “Necessary” means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” covers a species’ full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;
- Federal agencies shall, within 30 days after receiving conservation recommendations from NOAA Fisheries, provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH.

Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.2 Identification of EFH

Pursuant to the MSA, the Pacific Fisheries Management Council (PFMC) has designated EFH for federally-managed fisheries within the waters of Washington, Oregon, and California. Designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line, and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic

zone (370.4 km) (PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other waterbodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years) (PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border (PFMC 1999).

Detailed descriptions and identifications of EFH are contained in the fishery management plans for groundfish (PFMC 1998a), coastal pelagic species (PFMC 1998b), and Pacific salmon (PFMC 1999). Casillas *et al.* (1998) provides additional detail on the groundfish EFH habitat complexes. Assessment of the potential adverse effects to these species' EFH from the proposed action is based, in part, on these descriptions and on information provided by the BLM and FS.

3.3 Proposed Actions

The proposed actions are detailed above in section 1.3 of this Opinion. The action area is defined in section 1.4. The action area includes habitats that have been designated as EFH for various life-history stages of coho salmon and chinook salmon (*O. tshawytscha*). The proposed action does not authorize implementation of any individual projects, instead it replaces the standards and guidelines that pertain to management of POC. Individual consultation will occur on projects that incorporate these guidelines during project development.

3.4 Effects of Proposed Action

As described in detail in section 2.1.6 of the Opinion, the proposed action may result in adverse effects to habitat parameters. These adverse effects are:

- Chlorinated bleach spills.
- Reduction of streamflow.
- Loss of potential large woody debris.
- Increase in turbidity.
- Reduction of streamside vegetation.

3.5 Conclusion

NOAA Fisheries concludes that the proposed action will adversely affect EFH for coho salmon and chinook salmon.

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. NOAA Fisheries understands the conservation measures and project design features described in the biological assessment will be implemented, and believes they are sufficient to address the adverse impacts to EFH described above. The conservation recommendations outlined in section 2.1.9 would help address any unforeseen adverse effects this project has on EFH. Accordingly, NOAA Fisheries recommends that the FS/BLM implement that recommendation to minimize the potential adverse effects to EFH.

3.7 Statutory Response Requirement

Pursuant to the MSA (§305(b)(4)(B)) and 50 CFR 600.920(j), Federal agencies are required to provide a detailed written response to NOAA Fisheries' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

3.8 Supplemental Consultation

The FS and BLM must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920(k)).

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